

REMARKS

The Office Action mailed on December 31, 2003, has been reviewed as well as the art cited. Claims 1, 5, 6, 7, 12, 13, and 18 are currently amended. Claims 4, 8, and 19 have been cancelled. Claims 1-3, 5-7, 9-16, 18 and 20-22 are pending in this application.

Information Disclosure Statement

Applicant respectfully requests that a copy of the 1449 form (copy enclosed), listing all references that were submitted with the Information Disclosure Statement filed on March 19, 1999, marked as being considered and initialed by the Examiner, be returned with the next official communication.

Rejections Under 35 U.S.C. § 103

Claims 1-3, 7, 9-11, 13-16, 18, 20 and 21 were rejected under 35 USC § 103(a) as being unpatentable over Farhan et al. (U.S. Patent No. 6,373,611) in view of Dail (U.S. Patent No. 5,878,325).

Claims 4, 8 and 19 were rejected under 35 USC § 103(a) as being unpatentable over Farhan et al. (U.S. Patent No. 6,373,611) in view of Dail (U.S. Patent No. 5,878,325) as applied to claims 1, 7 and 18 above, and further in view of Smith, III (U.S. Patent No. 4,112,488).

Claims 5, 12 and 22 were rejected under 35 USC § 103(a) as being unpatentable over Farhan et al. (U.S. Patent No. 6,373,611) in view of Dail (U.S. Patent No. 5,878,325) as applied to claims 1, 7 and 18 above, and further in view of Sayeed et al. (U.S. Patent No. 5,828,677).

Claim 6 was rejected under 35 USC § 103(a) as being unpatentable over Farhan et al. (U.S. Patent No. 6,373,611) in view of Dail (U.S. Patent No. 5,878,325) as applied to claim 1 above, and further in view of Johnson et al. (U.S. Patent No. 3,995,144) and Petroff (U.S. Patent No. 5,198,989).

In order to expedite prosecution, claim 1 has been amended to incorporate the language recited in claim 4 and claim 4 has been cancelled. In other words, claim 1 now recites claim 4 in independent form.

Amended claim 1, in part, recites "wherein the transmitter incorporates data from a status monitor in the baseband digital signal transmitted to the head end." With respect to claim 4, the Office Action noted that Farhan in view of Dail does not expressly disclose this feature. The Office Action took the position that Smith, III (U.S. Patent No. 4,112,488) (referred to here as "Smith") teaches having a node monitor which reports data to a central control node so that the central control node can "take action to control the use of links associated with the node" if there are any problems with the node. The Office Action concluded that it would have been obvious for one of ordinary skill in the art at the time of the invention to have the transmitter incorporate data from a status monitor that monitors the operation of the optical distribution node in baseband signal transmitted to the head end and to have the at least one demultiplexer remove the status data for the head end from the serial baseband signal in order to inform the head end of the information collected by the status monitor.

It is respectfully submitted that one of ordinary skill in the art would not have been motivated to make the combination set forth in the Office Action. Smith states:

The network provides fault tolerance effectively at two levels, which can be defined as the "macro" level and the "micro" level. The macro level fault tolerance is achieved by the basic ability to re-configure the overall network so as to bypass failed links or nodes. Accordingly, the macro level of fault tolerance is used as a means for overcoming massive damage which might completely destroy certain links, nodes, or entire regions of the overall network. By re-configuring the network it is possible to reroute the data information so as to avoid the damaged regions. The micro level of fault tolerance is achieved by providing basic redundancy at each single node unit or linking path. Such redundancy is provided because each remote unit is connected to the network at a single node unit and, therefore, each node unit must be designed to have sufficient redundancy to achieve the specified reliability requirements. The redundancy of each node unit raises the basic reliability of the building blocks of the network and guards against most normal component failures.

Smith, column 6, lines 5 - 25. *See also*, Smith, Abstract ("The configuration of activated communication lin[k]s can be re-arranged periodically so that over a predetermined time period each of the links is activated at least once."). The hybrid-fiber coax networks of Farhan and Dail include no such link redundancy or link reconfigurability and the Office Action contains no explanation as to why one of ordinary skill in the art would have been otherwise motivated, based on Smith, to provide status data to the head end in the HFC networks of Farhan and Dail.

Thus, it is respectfully submitted that one of ordinary skill in the art would not have been motivated to make the proposed combination.

Accordingly, Applicant respectfully requests that the rejection of amended claim 1 be withdrawn.

Claims 2 and 3 depend from claim 1. Therefore, for at least the reasons set forth above with respect to claim 1, it is requested that the rejection of claims 2 and 3 be withdrawn.

In order to expedite prosecution, claim 5 has been rewritten in independent form by including the language previously set forth in claim 1.

Claim 5 recites, in part, "wherein the transmitter incorporates bit error rate link performance data into the baseband digital signal transmitted to the head end." The Office Action notes that Farhan in view of Dail does not explicitly disclose that the transmitter incorporates bit error rate link performance data that is coupled to the at least one multiplexer into the baseband digital signal transmitted to the head end or that the at least one demultiplexer removes bit error rate data from the serial baseband signal. The Office Action took the position that Sayeed et al. (U.S. Patent No. 5,828,677) (referred to here as "Sayeed") teaches, in a communication system, sending line information, such as BER, back to a transmitter in order to allow the transmitter to use the information to adjust transmission characteristics. The Office Action concluded that it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate bit error rate link performance data into the baseband digital signal transmitted to the head end and to have the demultiplexer remove the data from the signal in order to permit the head end to use the data in a manner which ensures low BER on the line by adjusting the transmission properties at the head end.

It is respectfully submitted that Sayeed teaches away from the proposed combination. The portion of Sayeed cited in the Office Action is as follows:

In prior art adaptive hybrid ARQ schemes, the adaptation of the code depends on explicit estimates of the channel conditions. For example, the channel conditions may be determined based on the BER, which necessarily must be measured (over a period of time) by the receiver. This information is then transmitted back to the transmitter, which then adapts the error code based thereon. Therefore, these schemes require that conventional hybrid ARQ receivers be modified, both to

perform an analysis to make such a determination (e.g., to calculate the BER over time), and, moreover, to transmit the additional data back to the transmitter.

Sayed, column 2, lines 35 – 46. However, the remainder of that same paragraph of Sayeed states:

It would be preferable, however, to provide for an adaptive hybrid ARQ scheme that can be used with conventional hybrid ARQ receivers. That is, it would be desirable to provide such a scheme which does not require that the receiver be burdened with such an additional analysis task, and, more importantly, one that does not require additional data be transmitted (back from the receiver).

Sayed, column 2, lines 46 - 52. In other words, Sayeed teaches away from measuring and transmitting BER data as proposed in the Office Action.

Accordingly, Applicant respectfully requests that the rejection of amended claim 5 be withdrawn.

In order to expedite prosecution, claim 6 has been rewritten in independent form by including the language previously set forth in claim 1.

Claim 6 recites, in part, “wherein the transmitter combines signals from the plurality of coaxial cables prior to converting the signals to baseband digital signals.” In rejecting claim 6, the Office Action conceded that Farhan in view of Dail does not explicitly disclose that the transmitter combines signals from the plurality of coaxial cables prior to converting the signals to baseband digital signals. The Office Action stated that, rather, Farhan in view of Dail discloses that the transmitter converts the signals from the coaxial cables prior to combining the signals. The Office Action asserted, however, that the former arrangement is well known in the art, as is evidenced by Johnson et al. (U.S. Patent No. 3,995,144) (referred to here “Johnson”) and Petroff (U.S. Patent No. 5,198,989) (referred to here as “Petroff”). The Office Action reasoned that it is implicit that such an arrangement only necessitates a single analog-to-digital converter instead of one converter for each input, thus decreasing the number of analog-to-digital converters needed in the system. The Office Action concluded that it would have obvious to one skilled in the art at the time of the invention to use a multiplexer to combine signals before performing analog-to-digital conversion in order to implement the system with a single analog-to-digital converter instead of one converter for each input.

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *See* M.P.E.P., Section 2143.01, citing *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) and *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992). Moreover, a statement that modifications of the prior art to meet the claimed invention would have been “ ‘well within the ordinary skill of the art at the time the claimed invention was made’ ” because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references. *See* M.P.E.P., Section 2143.01, citing *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993), *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1318 (Fed. Cir. 2000), and *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999) (The level of skill in the art cannot be relied upon to provide the suggestion to combine references.).

The Office Action provides no motivation for reducing the number of analog-to-digital converters used in Farhan in view of Dail. It is respectfully submitted that the proposed combination makes use of impermissible hindsight in this regard.

Moreover, Dail teaches away from the proposed combination. For example, Dail states:

Briefly, in accordance with a preferred embodiment of the invention, ingress noise in a shared hybrid fiber-coax system in which upstream information is transmitted from the subscribers to the head end, can be reduced by regenerating the subscriber-generated upstream information through uplink regenerators, as taught in my copending patent application Ser. No. 08/650,683 (incorporated by reference herein). However, at the fiber node, the upstream signal, *previously digitized by the regenerator, is not reconverted to an analog signal*. Instead, the digital received signal is transmitted in a digital baseband, optical format across an optical fiber to the head end.

Dail, column 1, line 61 – column 2, line 5. Dail also states:

As discussed in my aforementioned U.S. patent application Ser. No. 08/650,683 (incorporated by reference herein), *ingress noise can be reduced by digitally regenerating the upstream information within the coaxial cable distribution network 20 of FIGS. 1 and 2*. To that end, a digital regenerator 46 may be provided within, or proximate to, one or more of the trunk amplifiers 36--36 for digitizing and digitally regenerating the subscriber-generated upstream

information. If necessary, a regenerator 46 may be provided within one or more of the line extenders 42--42 of FIGS. 1 and 2 as well.

Dail, column 3, lines 46 – 56. In other words, Dail indicates that it is desirable to have any analog-to-digital conversion occur in the cable portion of the HFC network prior to any combining in the optical node. This teaches away from the proposed combination and the stated motivation for such a combination.

Accordingly, Applicant respectfully requests that the rejection of amended claim 6 be withdrawn.

In order to expedite prosecution, claim 7 has been amended to incorporate the language recited in claim 8 and claim 8 has been cancelled. In other words, claim 7 now recites claim 8 in independent form. Amended claim 7 recites, in part, “a monitor that monitors the operation of the optical distribution node and that creates status data for transmission to a head end in the serial data stream.”

For at least those reasons given above with respect to amended claim 1, it is respectfully submitted that the cited art does not support rejection of amended claim 7. Accordingly, Applicant respectfully requests that the rejection of amended claim 7 be withdrawn.

Claims 9 through 11 depend from claim 7. Therefore, for at least the reasons set forth above with respect to claim 7, it is requested that the rejection of claims 9 through 11 be withdrawn.

In order to expedite prosecution, claim 12 has been rewritten in independent form by including the language previously set forth in claim 7. Claim 12 recites, in part, “bit error rate link performance data that is coupled to the at least one multiplexer to be included in the serial data stream.”

For at least those reasons given above with respect to amended claim 5, it is respectfully submitted that the cited art does not support rejection of amended claim 12. Accordingly, Applicant respectfully requests that the rejection of amended claim 12 be withdrawn.

In order to expedite prosecution, claim 13 has been amended to further recite “monitoring the operation of the optical distribution node to create status data for transmission to a head end in the serial data stream.”

For at least those reasons given above with respect to amended claim 1, it is respectfully submitted that the cited art does not support rejection of amended claim 13. Accordingly, Applicant respectfully requests that the rejection of amended claim 13 be withdrawn.

Claims 14 through 16 depend from claim 13. Therefore, for at least the reasons set forth above with respect to claim 13, it is requested that the rejection of claims 14 through 16 be withdrawn.

In order to expedite prosecution, claim 18 has been amended to incorporate the language recited in claim 19 and claim 19 has been cancelled. In other words, claim 18 now recites claim 19 in independent form. Amended claim 18 recites, in part, "wherein the at least one demultiplexer removes status data for the head end from the serial baseband signal."

For at least those reasons given above with respect to amended claim 1, it is respectfully submitted that the cited art does not support rejection of amended claim 18. Accordingly, Applicant respectfully requests that the rejection of amended claim 18 be withdrawn.

Claims 20 through 22 depend from claim 18. Therefore, for at least the reasons set forth above with respect to claim 18, it is requested that the rejection of claims 20 through 22 be withdrawn.

CONCLUSION

Applicant respectfully submits that claims 1-3, 5-7, 9-16, 18 and 20-22 are in condition for allowance and notification to that effect is earnestly requested. If necessary, please charge any additional fees or credit overpayments to Deposit Account No. 502432.

If the Examiner has any questions or concerns regarding this application, please contact the undersigned at (612) 332-4720.

AMENDMENT AND RESPONSE

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Attorney Docket No. 100.044US01

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Respectfully submitted,



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